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Operation and commissioning of IFMIF (International Fusion Material Irradiation Facility) LIPAc Injector

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Under the framework of ITER Broader Approach (BA) agreement between Japan and EU, IFMIF-EVEDA (Engineering Validation and Engineering Design Activities) project has been launched in 2007 in Japan to validate the key technologies to realize IFMIF. IFMIF is an accelerator based neutron facility having two set of linear accelerators each producing 125mA/CW deuterium ion beams (250mA in total) at 40MeV. The LIPAc (Linear IFMIF Prototype Accelerator) being developed in the IFMIF-EVEDA project consists of an injector, a RFQ accelerator, and a part of superconducting Linac, whose target is to demonstrate 125mA/CW deuterium ion beam acceleration up to 9MeV. The injector has been developed in CEA Saclay and already demonstrated 140mA/100keV deuterium beam [1]. The injector was disassembled and delivered to the International Fusion Energy Research Center (IFERC) in Rokkasho, Japan, and the commissioning has started after its reassembly 2014; the first beam production has been achieved in November 2014 [2]. Up to now, 100keV/120mA/CW hydrogen ion beam has been produced with a low beam emittance of 0.2 π.mm.mrad (rms, normalized). Full performance of the injector will be presented with the characteristics of the ECR ion source and the Low Energy Beam Transport consisting of two solenoid coils.

[1] R. Gobin, et al., Rev. Sci. Instrum. **85**, 02A918 (2014)
[2] R. Gobin, et al., "Installation and first operation of the IFMIF LIPAc Injector at BA Rokkasho site in Japan.", to be presented in this conference.